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IS 10295 (1982): Fenitrothion Water Dispersible Powders
[FAD 1: Pesticides and Pesticides Residue Analysis]



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IS : 10295 - 1982

(Reaffirmed 2004)

Edition 1.2

(1994-07)

Indian Standard

**SPECIFICATION FOR FENITROTHION
WATER DISPERSIBLE POWDERS**

(Incorporating Amendment Nos. 1 & 2)

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BUREAU OF INDIAN STANDARDS
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Price Group 2

*Indian Standard*SPECIFICATION FOR FENITROTHION
WATER DISPERSIBLE POWDERS

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Indian Standard

SPECIFICATION FOR FENITROTHION WATER DISPERSIBLE POWDERS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 30 September 1982, after the draft finalized by the Pest Control Sectional Committee had been approved by the Agricultural and Food Products Division Council and the Chemical Division Council.

0.2 Fenitrothion water dispersible powders are largely used in the control of mosquitoes as mosquito adulticide to safeguard public health.

0.3 Fenitrothion water dispersible powders are generally manufactured to contain 40 percent (*m/m*) fenitrothion content.

0.4 In the preparation of this standard due consideration has been given to the provision of the *Insecticides Act*, 1968 and the Rules framed thereunder. However, this standard is subject to the restrictions imposed under these rules wherever applicable.

0.5 This edition 1.2 incorporates Amendment No. 1 (June 1988) and Amendment No. 2 (July 1994). Side bar indicates modification of the text as the result of incorporation of the amendments.

0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and methods of sampling and test for fenitrothion water dispersible powders.

2. REQUIREMENTS

2.1 Description — The material shall consist of a homogeneous mixture of technical fenitrothion in a suitable filler and shall be in the form of a fine, free-flowing powder. The material shall wet readily on stirring with water, providing a suspension suitable for use as spray.

*Rules for rounding off numerical values (*revised*).

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2.1.1 Fenitrothion, technical employed in the manufacture of this material shall conform to IS : 5280-1969*.

2.2 The material shall also comply with the requirements given in Table 1.

**TABLE 1 REQUIREMENTS FOR FENITROTHION
WATER DISPERSIBLE POWDERS**

(Clauses 2.2 and 5.1)

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST, REF TO	
			Appendix of IS : 5281- 1979*	Cl No. of IS : 6940- 1982†
(1)	(2)	(3)	(4)	(5)
i)	Fenitrothion content, percent by mass	Nominal value as declared on the container (<i>see 2.2.1</i>)	A	—
ii)	Material passing through 75-micron IS Sieve‡, percent by mass, <i>Min</i> (<i>see 5.1.2</i>)	98	—	11.1
iii)	Suspensibility, percent by mass, <i>Min</i> (<i>see 5.1.2</i> to <i>5.1.4</i>)	50	—	11.2
iv)	Acidity (as H ₂ SO ₄), percent by mass, <i>Max</i>	0.5	—	11.3.2
	or			
	Alkalinity (as NaOH), percent by mass, <i>Max</i>	0.2	—	11.3.3

*Specification for fenitrothion emulsifiable concentrates (*first revision*).

†Methods of tests for pesticides and their formulations (*first revision*).

‡See IS : 460 (Part I)-1978 Specification for test sieves: Part I Wire cloth test sieve (*second revision*). BS test sieve 200, ASTM test sieve 200, and Tyler test sieve 200 have their apertures within the limits specified for the above IS test sieve and may, therefore, be used as 75-micron IS sieve.

NOTE — The material shall not be subjected to accelerated to storage treatment if it has crossed half of its shelf life as ascertained from its date of manufacture and date of expiry declared on the container.

*Specification for fenitrothion, technical.

2.2.1 Fenitrothion Content— When determined by the method prescribed in 5.1.1 and Appendix A of IS : 5281-1979* the observed fenitrothion content shall not differ from the declared nominal value by more than appropriate tolerances given below:

<i>Nominal value, percent</i>	<i>Tolerance limit, percent</i>	
Up to 9	+ 10 - 5	} of the nominal value
Above 9 and below 50	± 5	
50 and above	+ 5 - 3	

2.2.1.1 The actual value of the fenitrothion content in the formulations shall be calculated to the second decimal place and then rounded off to the first decimal place before applying the tolerances given in 2.2.1.

2.2.1.2 The average content of all samples taken shall not be less than the nominal content.

3. PACKING AND MARKING

3.1 Packing— The material shall be packed in mild steel or tin plate containers suitably lacquered or with polyethylene liner of thickness not less than 0.062 mm. Galvanized steel drums may also be used without a liner. The containers shall comply with the general requirements as specified in 2 of IS : 8190 (Part I)-1980†.

3.2 Marking— The container shall bear legibly and indelibly the following information and any other additional information as is necessary under the *Insecticides Act and Rules*:

- a) Name of the material;
- b) Name of the manufacturer;
- c) Date of manufacture;
- d) Batch number;
- e) Net mass of contents;
- f) Nominal fenitrothion content, percent (*m/m*); and
- g) A cautionary notice as worded in *Insecticides Act and Rules*.

*Specification for fenitrothion emulsifiable concentrates (*first revision*).

†Requirements for packing of pesticides: Part I Solid pesticides (*first revision*).

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3.2.1 Each container may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

4. SAMPLING

4.1 When freshly manufactured material in bulk quantity is offered for inspection, representative samples of the material shall be drawn and tested as prescribed in IS : 10627-1983 within 90 days of its manufacture. When the material is offered for inspection after 90 days of its manufacture, sampling shall be done as prescribed in IS : 10627-1983. However, the criteria for conformity of the material when tested, shall be the limits of tolerances, as applicable over the declared nominal value and given under clause **2.2.1** of the standard.

5. TESTS

5.1 Tests shall be carried out by the methods as prescribed in col 4 and 5 of Table 1.

5.1.1 *Extraction of Free 4-Nitro-m-Cresol* — Weigh accurately an amount of the sample containing 0.75 g of fenitrothion and disperse in 20 ml ether. Decant through a filter into a 250 ml separating funnel. Disperse the residue in another 20 ml portion of ether, decant and repeat the operation with three further 20 ml portions of ether. Extract the ether solution four times with 20 ml portion of chilled one percent (*m/v*) sodium carbonate solution and discard the aqueous extract. The extraction should be done as quickly as possible to prevent decomposition of the active ingredient. After extraction, proceed in accordance with **A-2.2** of IS : 5281-1979*.

5.1.2 For accelerated storage treatment, place 20 g of sample in a 100 ml wide mouthed bottle fitted with a vinyl-plastic lined screw-cap. Place in a forced-draught oven maintained at $70 \pm 1^\circ\text{C}$ for 2 hours, take the sample from the oven and allow to cool to room temperature before removing the cap. After completion of accelerated storage treatment, the sample should not be exposed to heat or bright sunshine. The sample should also not be exposed to high atmospheric humidity.

*Specification for fenitrothion emulsifiable concentrates (*first revision*).

5.1.3 For carrying out suspensibility test weigh accurately into a 100 ml beaker an amount of the sample to form 250 ml of a suspension containing 2.5 percent (*m/m*) of fenitrothion and then proceed in accordance with **11.2** of IS : 6940-1982*.

5.1.4 After removal of 225 ml of suspension fill the cylinder containing the retained one-tenth of the suspension including the sediment to the 250 ml mark with anhydrous acetone. Stopper and shake vigorously for two minutes to effect complete solution of the active ingredient. Allow the clay particles to settle and transfer by pipette 100 ml of the supernatant liquid to a 400 ml beaker. Evaporate to near dryness on a water-bath and add 100 ml of acetic acid-hydrochloric acid mixture and proceed in accordance with **A-2.2** of IS : 5281-1979†.

5.2 Quality of Reagents — Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070-1977‡) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

*Methods of tests for pesticides and their formulations (*first revision*).

†Specification for fenitrothion emulsifiable concentrates (*first revision*).

‡Specification for water for general laboratory use (*second revision*).

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